

SaaS (Software as a Service) Based Business Model: Cost Analysis

Amit

Automation Services, Basware Corporation, Chandigarh, INDIA

Abstract: Software as a service (SaaS) is a newly developed software delivery model. This paper discussed the implications of services, SaaS, outsourcing, and economic perspectives of running SaaS business model. Subscribing SaaS service will allow organization to save their IT investment on infrastructure, networking, hardware, software, and personnel costs. SaaS providers play the role of outsourcing vendors who offer the contracting service to their clients by charging a monthly fee. Adopting SaaS business model (i.e., pay-per-use charging) could save companies a tremendous amount of IT expenses. The results of this study can provide IT professionals certain expectations on delivering outsourcing method and also keeping IT jobs on board.

Keywords: Software as a service (SaaS), Application-Service-Providers (ASPs), ISVs, cost analysis.

I. INTRODUCTION

Software as a service (SaaS, pronounced assas), sometimes referred to as "on-demand software" supplied by ISVs or "Application-Service-Providers" (ASPs), is a software delivery model in which software and associated data are centrally hosted on the cloud. SaaS is typically accessed by users using a thin client via a web browser. SaaS has become a common delivery model for many business applications, including Office & Messaging software, DBMS software, Management software, CAD software, Development software, Gamification, Virtualization, accounting, collaboration, customer relationship management (CRM), management information systems (MIS), enterprise resource planning (ERP), invoicing, human resource management (HRM), content management (CM) and service desk management. SaaS has been incorporated into the strategy of all leading enterprise software companies. One of the biggest selling points for these companies is the potential to reduce IT support costs by outsourcing hardware and software maintenance and support to the SaaS provider.

Subscribing SaaS service will allow organization to save their IT investment on infrastructure, networking, hardware, software, and personnel costs. SaaS providers play the role of outsourcing vendors who offer the contracting service to their clients by charging a monthly fee. After that, SaaS providers will handle all needed services for their customers, including frequent application software's maintenance, customization, and updating. It is highly predictable that SaaS will win users' support in the near future.

Information technology investment is always a debatable topic in business world since it costs a big share of corporate budget. Depending on company's strategy, IT cost can be saved through various IT outsourcing models. The outsourcing decision is also a hot issue in the US economy since it caused job shifting result. Especially, offshore outsourcing decision has been condemned by people who were hurt from that. SaaS, however, is a type of outsourcing model but the jobs needless to be shifted to foreign countries. Also, the cost of adopting SaaS business model is an interesting research area since this business model is much simpler and easier than traditional IT outsourcing practice. Many domestic IT companies (such as IBM, Microsoft, Oracle, etc.) play the role of SaaS providers; business companies can conduct inshore outsourcing without any technical difficulty.

The SaaS model is expected to become an important alternative - especially during a financial crunch - not only for larger companies but also for small and medium businesses with low budgets for IT. Since a traditional IT budget is made up of an IT team, SW licenses, and equipment such as servers, SaaS offers a significantly reduced TCO (total cost of ownership). This is due to low cost of deployment, no expensive equipment purchases, and the ease and speed of implementation. As SaaS is often put into service on a pay-per-use basis, or subscription based on usage, this further reduces corporate expenditures.

II. Services and Implications of SaaS

The concept of 'services' is widely used in economic disciplines. Services, which are differentiated from products or merchandises, are defined as "intangible goods" in economic literatures. According to Britannica Online Encyclopedia (2007), "Service industry is an industry in that part of the economy that creates services rather than tangible objects."

Implications of SaaS:

Software as a service (SaaS) is a newly developed software delivery model. It became a commonly accepted business model after the first SaaS Conference to be offered by SD Forum (2005) in 2005. Although SaaS is relatively fresh to business world, the implication of such software delivery model is not new to the software industry since several similar software delivery models were in the market before, such as Application Service Provider (ASP) and "on demand". Within SaaS vendors, IBM and Microsoft are two of the major service providers although Google and Amazon also fall under this category. Their definitions to SaaS are illustrated below:

IBM (2007b) defines SaaS as:

"The Software as a Service (SaaS) business model is impacting the software industry and how your customers acquire business functionality and solutions. In this model, application functionality is delivered through a subscription model over the Internet. The customer does not take ownership of the software, but instead rents a total solution that is delivered remotely. With the SaaS model, you can reduce up-front support costs because you no longer need to support multiple platforms and versions. This rapidly emerging delivery model can help you, as an ISV, enter new markets."

Microsoft (2007) defines SaaS as:

"Software as a Service (SaaS)—meaning delivering software over the Internet—is increasingly popular for its ability to simplify deployment and reduce customer acquisition costs; it also allows developers to support many customers with a single version of a product. SaaS is also often associated with a "pay as you go" subscription licensing model."

Software as a service is a business model in the software industry that offering Internet-based software application programs to customers through the Internet channels and networks. Since customers just pay a subscription fee to rent the software for use, they do not need to keep the whole or partial application software in house. The scale of subscription fee depends on the number of users and the length of using time at customer's site. In essence, adopting SaaS software applications can save user's company a tremendous amount of IT expenses.

III. SaaS from Outsourcing viewpoint

The circumstance that companies seeking SaaS services from IT vendors illustrates an IT outsourcing model. Outsourcing practice has been implemented in business organizations for many reasons. Within multiple motives, the main concern should be "cost saving".

Chou (2007) analyzed the above outsourcing causes and found they were related to existing economic theories. For example, items 1 and 6 were linked to transaction cost theory, items 4 and 5 were connected to resource-based theory, items 2 and 3 were tied to competitive advantage theory, item 7 was related to organizational change theory, items 7 and 9 were associated to risk and quality management, and items 8 and 10 were bonded to financial economics (Chou, 2007). We discuss some

prominent economic theories that are closely related to outsourcing decision, they are production cost economics, and transaction cost theory, resource-based theory, competitive advantage, and economics of scale and vertical chain.

Every company bears the burden of information technology (IT) investment. However, IT is a must competence for firms to gain competitive advantage in the marketplace. For this reason, firms must invest in a considerable amount of fund for IT operations. Maintaining up-to-dated information systems in firms is costly. In order to make a firm more competitive in the market, seeking an alternative to reduce IT operational cost becomes a logical path. Other related IT challenges could include reducing IT infrastructure complexity, a sound return on investment (ROI) from IT investment, faster response time and throughput, systems agility, system integration, and strict security. Under such circumstances, IT outsourcing becomes one of the alternatives that can be used to achieve such goals.

Outsourcing is “the execution of hiring outside professional services to meet a company’s in-house needs” (Chou, 2007). IT outsourcing refers to “the use of external professional agencies to process, manage or maintain internal data and information systems related services” (Chou, 2007). IT outsourcing was originated from IT consulting practice. After a few decades’ evolution, IT outsourcing has developed into a variety of business models, including “IT contractors or staff augmentation, legacy software project outsourcing, packaged software outsourcing, offshore development centers, and captive development centers” (Robinson and Kalakota, 2004).

The business practice of SaaS can be classified as an outsourcing model. Under such outsourcing practice, SaaS users gain the following advantages:

1. *Cost saving*: SaaS users can save a big portion of its IT operational cost by renting just needed applications for their business needs. The traditional IT expenses such as purchasing and maintaining hardware, software, infrastructure, and IT professionals could be minimized.
2. *Better resources utilization*: SaaS users can save IT expenses and then use the fund for more strategic processes.
3. *More application access scalability*: SaaS vendors frequently offer a multi-tenant architecture, which allows client side’s application access to be scaled up or down immediately.
4. *Global outsourcing possibility*: The advancement of Web technology allows SaaS vendors to be located overseas and also offer the high quality services. The offshore outsourcing model allows SaaS users to save more IT expenses.

SaaS based business Strategy:

For companies intending to switch to SaaS setting, they need to assess the break-even point for existing IT investment, including the hardware, software, networking infrastructure, and even IT personnel. However, it is much easier for a start-up company to choose SaaS model for its IT capability since the investment in hardware, software, personnel, and complex networking infrastructure could be saved.

Selecting a SaaS outsourcing strategy would benefit the realignment of a company’s organizational restructure and cultural change. However, this company must follow a series of stages to implement such outsourcing strategy. First of all, the top management must work with IT managers to determine their SaaS goals and then set the strategy. The second stage is to create the SaaS delivery model, including the search for a suitable SaaS provider. The third stage is to negotiate the SaaS contract with the targeted provider. The fourth stage is to identify needed service level agreements for providers’ agreement. The fifth stage is to arrange and manage the transition in IT department. The sixth stage is to assign a project manager to work with the SaaS provider for maximizing the value of project and the harmony of working relationship. The last stage is to assess the outsourcing project through measuring performance of the project. The measurement results can be used to determine the likelihood of continuing such contract.

IV. The Total Cost Analysis (TCO)

The cost analysis is a method that demonstrates and signifies cost components that involved in corporate IT operations. One commonly recognized cost analysis technique is “total cost of ownership” (TCO). TCO comes beyond initial capital

investments to include other costs that associated with technical support, administration, and personnel training (Pearlson and Saunders, 2006). TCO estimates “annual costs per user for each potential infrastructure choice” (Pearlson and Saunders, 2006); these costs are then totaled to estimate the total IT expense in the organization.

A traditional company that houses an IT department should invest in the following TCO components: hardware, software, network, data, technical support, administration, and training. Each component can further divided into various subcomponents. If a company wishes to switch to SaaS model, it needs to pay additional transition cost at the front end. These transition costs occurred during SaaS vendor searching, contracting activity, project transition, project management, and communications. After smoothing out the work, the TCO for SaaS would be greatly reduced.

V. Capabilities and Future of SaaS

Technological Capability of SaaS:

The core technology of SaaS is centered on its multi-tenant architecture. Chong and Carraro (2006) characterized SaaS as “Software deployed as a hosted service and accessed over the Internet.” In order to provide efficient and effective services to SaaS clients, the SaaS providers must design their application architecture as “scalable, multi-tenant-efficient, and configurable” (Chong and Carraro, 2006).

Application scalability allows SaaS providers to exploit concurrency of their services and to utilize application resources more freely. The concept of multi-tenant efficiency requests application architecture to maximize resource sharing among tenants, however, in the meantime it can still distinguish clients’ data from each other. The application configuration is an important task for SaaS technology since a hosted application will be accessed by multiple users/clients. The best SaaS architecture should bear the capability of making the task of application configuration simple and easy among distinct users/clients.

Future Development of SaaS:

Data security is the main concern and growth obstacle for the SaaS industry. The future development of SaaS should focus on the design of data security and assurance for SaaS applications and transactions. Needless to say, customers will not subscribe SaaS service if they will not feel that their business data and transactions are securely protected by the vendor.

The advance of service-oriented architecture (SOA) allows SaaS business model to be continuously developed and moving forward. SOA is a methodology that allows system architecture to be constructed with service components that can be flexibly reusable and rejoined for desirable applications. Common principles of service-orientation are the fundamental competence for SOA design. Erl (2005) described service-oriented principles as: “services are reusable, services share a formal contract, services are loosely coupled, services abstract underlying logic, services are composable, services are autonomous, services are stateless, and services are discoverable”. These characteristics can be used to make SOA powerful software architecture for upcoming SaaS development.

VI. Conclusion

Software as a Service is relative new to IT industries. However, its delivery model represents a brand new and economic outsourcing model. Since SaaS technology is still under developing stage, there are many issues need to be resolved before it can be fully utilized in the business world. However SaaS based service providers pays a considerably higher amount than traditional infrastructure hosting services but in turn providers earn comparatively good revenues than traditional infrastructure based business model.

This paper discussed the implications of services, SaaS, outsourcing, and economic perspectives of running SaaS business model. The results of this study can provide IT professionals certain expectations on delivering outsourcing method and also keeping IT jobs on board. Further research should focus on detailed economic analyses and case studies.

References

1. An in-depth introduction to SaaS is available at <http://www.webopedia.com>
2. An implementation and detailed description of SaaS is available at http://en.wikipedia.org/wiki/Software_as_a_service
3. IBM (2007b) SaaS, available at <http://www-304.ibm.com/jct09002c/isv/marketing/saas/index.html>
4. Microsoft (2007) Software as a Service, available at <http://www.microsoft.com/serviceproviders/saas/default.aspx>
5. Pearlson, K.E. and Saunders, C.S. (2006) *Managing and Using Information Systems*, third edition, Hoboken, NJ: John Wiley & Sons.
6. SDForum.org (2007) available at <http://www.sdforum.org/saas2005>
7. Pearlson, K.E. and Saunders, C.S. (2006) *Managing and Using Information Systems*, third edition, Hoboken, NJ: John Wiley & Sons.
8. Erl, T. (2005) *Service-Oriented Architecture*, Upper Saddle River, NJ: Prentice Hall.
9. Chou D. (2007) "An investigation into IS outsourcing success: the role of quality and change management", *International Journal of Information Systems and Change Management*, Vol. 2, No. 2, pp. 190-204.
10. Britannica Online Encyclopedia (2007) "Service industry", available at <http://www.britannica.com/eb/article-9066885/service-industry>.
11. Implication of SaaS in SMBs is available at <http://www.smallbusinesscomputing.com/testdrive/article.php/3795841/CostCutting-Storage-Strategies-for-Small-Businesses.htm>
12. A discussion forum for SaaS based services is available at <http://searchcloudcomputing.techtarget.com/definition/Software-as-a-Service>